



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|-------------------------------|------------------|
| 10/025,526 | 12/18/2001 | Johan Nilsson | P12889US2 | 6219 |
| 27045 | 7590 | 07/31/2007 | | |
| ERICSSON INC. 6300 LEGACY DRIVE M/S EVR 1-C-11 PLANO, TX 75024 | | | EXAMINER BHATTACHARYA, SAM | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2617 | |
| | | | MAIL DATE | DELIVERY MODE |
| | | | 07/31/2007 | PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/025,526

Applicant(s)

NILSSON ET AL.

Examiner

Sam Bhattacharya

Art Unit

2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 April 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16, 19-21, 24, 26, 28-32 and 34-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 16, 19-21, 24, 26, 28-32 and 34-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 16, 19-21, 24, 26, 28-32, 34, 36-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bergstrom et al. (US 6,131,013) in view of Heinonen et al. (US 6,363,127) and O'Byrne (US 6,243,584).

Regarding claims 16, 21, 26, 28, 34 and 36, Bergstrom et al. disclose a mobile communications terminal 304 including an electronic circuit 314 configured to receive a wireless communications signal carrying signal channels with transmitted information, the electronic circuit comprising signal processing units adapted to provide at least one of: a signal representing gain from an automatic gain control unit (gain signal); a transmission power control command signal (TPC command signal); a signal representing strength of the wireless communications signal; and a signal representing a signal-to-interference ratio; and wherein the type of interference is classified in one of at least two predetermined classes of interference. See col. 3, lines 39-51, and col. 6, line 56 – col. 7, line 35. Signal processing units in Bergstrom are adapted to provide a signal representing signal-to-noise (or interference) ratio of the received signal.

Bergstrom fails to disclose an interference classifier adapted to classify a type of interference affecting communications quality by evaluating time-domain behavior of at least

Art Unit: 2617

one of an AGC signal, a TPC command signal, a signal representing the strength of the wireless communications signal, and the signal representing the signal-to-interference ratio.

However, in an analogous art, Heinonen discloses a receiver that compensates for inference in a received signal, the receiver including an interference classifier adapted to classify a type of interference affecting communications quality by evaluating time-domain behavior of an AGC signal or the strength of the signal. See col. 6, line 62 – col. 7, line 24. It would have been obvious to one of ordinary skill in the art to include to modify the mobile communications terminal of Bergstrom by including an interference classifier to classify interference by evaluating time-domain behavior of an AGC signal or the strength of the signal, as taught by Heinonen, for the purpose of compensating for rapid and wide variations in the signal level due to channel and multipath fading over a period of time.

The combination of Bergstrom and Heinonen fails to disclose that a first class of interference includes inter-cell interference and a second class of interference includes intra-cell interference, and the interference classifier identifies and discriminates between inter-cell interference and intra-cell interference.

However, in an analogous art, O'Byrne discloses a mobile communication system for achieving disturbance-free operation wherein a first class of interference includes inter-cell interference and a second class of interference includes intra-cell interference, and an interference classifier identifies and discriminates between inter-cell interference and intra-cell interference. See FIG. 1 and col. 2, lines 27-33. Therefore, it would have been obvious to one of ordinary skill in the art to include to modify the mobile communications terminal of Bergstrom and Heinonen by incorporating these features taught in O'Byrne for the purpose of achieving

Art Unit: 2617

minimal disturbance and interference when the mobile station is inside a cell as well as traveling from one cell to another.

Regarding claim 19, Bergstrom et al. disclose means for processing the wireless communication signal via a set of filter coefficients selected dependent upon of a classified type of interference. See col. 18, line 49 – col. 19, line 5.

Regarding claims 20 and 24, Bergstrom et al. disclose that the filter means comprises a low-pass filter; and the low-pass filter has a relatively wide band-width when interference is classified to be intra-cell interference and a relatively narrow band-width when interference is classified to be inter-cell interference. See FIGS. 17 and 23, col. 16, lines 10-19, col. 19, line 50 – col. 20, line 30.

Bergstrom fails to disclose an interference classifier adapted to classify a type of interference affecting communications quality by evaluating time-domain behavior of at least one of an AGC signal, a TPC command signal, a signal representing the strength of the wireless communications signal, and the signal representing the signal-to-interference ratio.

However, in an analogous art, Heinonen discloses a receiver that compensates for inference in a received signal, the receiver including an interference classifier adapted to classify a type of interference affecting communications quality by evaluating time-domain behavior of an AGC signal. See col. 6, line 62 – col. 7, line 24. It would have been obvious to one of ordinary skill in the art to modify the mobile communications terminal in Bergstrom by including including an interference classifier to classify interference by evaluating time-domain behavior of an AGC signal, as taught by Heinonen, for the purpose of compensating for rapid and wide variations in the signal level due to channel and multipath fading over a period of time.

Regarding claims 29, 30, 37 and 38, Bergstrom discloses that the interference classifier is coupled to the electronic circuit, the interference classifier being adapted to output predetermined binary signals, the state of the predetermined binary signals operable to select a different interference reduction algorithm depending on the type of interference, where a first predetermined binary signal corresponds to the event of inter-cell interference and a second predetermined binary signal corresponds to the event of intra-cell interference. See col. 3, lines 39-51 and col. 5, lines 52-58.

Regarding claims 31, 32, 39 and 40, Bergstrom discloses a filter means for processing the wireless signal via a set of filter coefficients selected dependent upon the predetermined binary signal outputted, where the filter means includes a low pass filter having a wide band width when the predetermined binary signal corresponds to intra-cell and a narrow band width when the binary signal corresponds to inter-cell. See FIGS. 17 and 23, col. 16, lines 10-13 and lines 17-19, col. 18, line 35-40, col. 19, line 39-43 and col. 19, line 50 – col. 20, line 30.

3. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bergstrom et al. in view of Heinonen et al. and Smith et al. (US 5,809,017), and further in view of O'Byrne et al..

Regarding claim 35, the combination of Bergstrom and Heinonen fails to specifically disclose signal processing units adapted to provide a signal representing a gain from a transmission power command control (TPC command signal), and the interference classifier adapted to classify a type of interference affecting communications quality by evaluating the time-domain behavior of the TPC command signal.

However, in an analogous art, Smith discloses signal processing units adapted to provide a signal representing a gain from a transmission power command control (TPC command signal), and the interference classifier adapted to classify a type of interference affecting communications quality by evaluating the time-domain behavior of the TPC command signal. See col. 3, lines 29-58. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the mobile communications terminal of Bergstrom and Heinonen by including the above-mentioned features taught by Smith for the purpose of setting limits to the variation of the transmitted power over time, thereby minimizing interference of adjacent channels.

The combination of Bergstrom, Heinonen and Smith fails to disclose that the interference classifier identifies and discriminates between intra-cell interference and inter-cell interference.

However, in an analogous art, O'Byrne discloses a mobile communication system for achieving disturbance-free operation wherein a first class of interference includes inter-cell interference and a second class of interference includes intra-cell interference, and an interference classifier identifies and discriminates between inter-cell interference and intra-cell interference. See FIG. 1 and col. 2, lines 27-33. Therefore, it would have been obvious to one of ordinary skill in the art to include to modify the mobile communications terminal of Bergstrom and Heinonen by incorporating these features taught in O'Byrne for the purpose of achieving minimal disturbance and interference when the mobile station is inside a cell as well as traveling from one cell to another.

Response to Arguments

4. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Bhattacharya whose telephone number is (571) 272-7917. The examiner can normally be reached on Weekdays, 9-6, with first Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Eng can be reached on (571) 272-7495. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



sb